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09/893,222	06/27/2001	Stephen John Ames	ROC920010068US1	5002

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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,222	AMES ET AL.	
	Examiner	Art Unit	
	Nathan Curs	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 13-24* is/are rejected.

7)☒ Claim(s) *9-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 12 is objected to because of the following informalities: the claim depends on itself. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6, 17-20, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Reisenfeld (US Patent No. 4887280).

Regarding claim 1, Reisenfeld discloses a data rate detector, comprising: an input interface to receive a digital signal having a data rate that is one of at least two known data rates (fig. 1, element 64 and col. 5, lines 4-26 and col. 1, lines 45-58 and col. 4, lines 3-9); a passing frequency-selective filter assembly coupled to the input interface and includes a first filter to pass a signal when at least a selected difference of spectral power at a first selected filtered frequency exists between the one known data rate of the signal relative to the other of the two known data rates of the filter (fig. 1, element 32 and col. 4, lines 10-40); and, a signal detector coupled to the filter to detect the passed signal and output a data rate signal related thereto (fig. 1, element 46 and col. 4, lines 37-40).

Regarding claim 2, Reisenfeld discloses the data rate detector of claim 1, wherein the preselected spectral power difference is the difference between the spectral power value of one

of the two known data rates compared to a corresponding spectral power value of a null of the other of the two data rates at the preselected filtered frequency (col. 4, lines 10-40).

Regarding claim 4, Reisenfeld discloses the data rate detector of claim 1, wherein the filter assembly includes at least a second filter coupled to the input interface to receive a digital signal having a data rate that is at a third known data rate, the second filter passes a signal when at least a selected difference of spectral power at a second selected filtered frequency exists between the third known data rate and the two known data rates, and a second signal detector detects the passed signal of the second filter and outputs a corresponding data rate signal related thereto (col. 1, lines 45-58 and col. 4, lines 10-40).

Regarding claim 6, Reisenfeld discloses the data rate detector of claim 1 wherein the first filter is a bandpass filter (fig. 1, element 48 and col. 3, lines 55-58).

Regarding claim 17, Reisenfeld discloses a method of detecting the transmission rate of a data signal, comprising: (a) receiving the data signal having the transmission rate that could be one of at least two known data rates (col. 1, lines 45-58 and col. 4, lines 3-9); (b) utilizing a frequency-selective filter assembly including a first filter for passing signal if the incoming data rate exists at the preselected filtered frequency and comparing the signal power to the selected spectral power level (fig. 1, element 32 and col. 4, lines 10-40); and, (c) passing an output from the filter to a signal detector and outputting a data rate signal from the signal detector (fig. 1, element 46 and col. 4, lines 37-40).

Regarding claim 18, Reisenfeld discloses the method of claim 17, wherein the preselected difference is the difference in spectral power between a null of the data signal at one of the two known data rates compared to a corresponding spectral power value at the other of the two known data rates (col. 4, lines 10-40).

Regarding claim 19, Reisenfeld discloses the method of claim 18, wherein the data rate signal has an output signal indicative of the transmission rate (col. 3, lines 64-66), where the output signal from the analog comparator is inherently a voltage signal.

Regarding claim 20, Reisenfeld discloses the method of claim 19 wherein the filtering is accomplished by using a bandpass filter (fig. 1, element 48 and col. 3, lines 55-58).

Regarding claim 23, Reisenfeld discloses the method of claim 17 wherein provision is made for at least a second filter coupled to the input interface to receive a digital signal having a data rate that is at a third known data rate, the second filter passes a signal when at least a selected difference of spectral power at a second selected filtered frequency exists between the third known data rate and the two known data rates, and a second signal detector detects the passed signal of the second filter and outputs a corresponding data rate signal related thereto (col. 1, lines 45-58 and col. 4, lines 10-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisenfeld (US Patent No. 4887280).

Regarding claim 3, Reisenfeld discloses the data rate detector of claim 1, but does not disclose that the two known data rates are integer multiples of each other. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the N known data rates detected by the system of Reisenfeld (col. 1, lines 45-58) can be integer multiples of

each other, based on the detection of power at spectral nulls using band filters taught by Reisenfeld (col. 4, lines 10-40), in order to provide the benefit of a band-pass filter having utility in detecting multiple data rates.

Regarding claim 24, Reisenfeld discloses a data rate detector, comprising: an input interface to receive a signal having a data rate that is one of at least two known data rates (fig. 1, element 64 and col. 5, lines 4-26 and col. 1, lines 45-58 and col. 4, lines 3-9); a frequency-selective filter assembly including at least a first filter coupled to the input interface to pass a signal at one of the two known data rates when at least a preselected difference of spectral power at a preselected filtered frequency of the one known data rate exists relative to a signal having the other of the two known data rates (fig. 1, element 32 and col. 4, lines 10-40); a signal detector to detect the passed frequency and output a data rate signal (fig. 1, element 46 and col. 4, lines 37-40); at least one feedback path to the input interface to adapt to the passed frequency to optimize transmission in response to the data rate signal (fig. 1, element 46 output to element 64). Reisenfeld does disclose the possibility of a host receiving the data detector output (col. 5, lines 55-57), but does not disclose a host interface to transmit the data rate signal outside the data rate detector. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the comparator of Reisenfeld outputting the signal indicative of the data rate (fig. 1, element 46) could transmit the data rate signal outside of the data rate detector, in order to make it available for further processing by the host processor.

6. Claims 5 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisenfeld (US Patent No. 4887280) in view of Gabara (US Patent No. 6307443).

Regarding claim 5, Reisenfeld discloses the data rate detector of claim 1, capable of detecting N data rates, but does not disclose that the first filter includes a tunable filter that

includes logic to pass multiple rates by adjusting the first null of the one known data rate. Gabara discloses a tunable bandpass filter (fig. 1, element 12 and col. 2, lines 53-56), including logic for adjusting the bandpass filter (col. 3, lines 9-19), where the comparing of current and previous values and the finite state machine are indications of logic. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the tunable bandpass filter and filter control logic of Gabara for the bandpass filter of Reisenfeld, in order to provide the benefit of provisioning the bandpass filter accordingly for detecting any of the N data rates based on power measurements at the data rate nulls taught by Reisenfeld.

Regarding claim 21, Reisenfeld discloses the method of claim 19, but does not disclose that the bandpass filtering step is accomplished by an active filter. Gabara discloses an active tunable bandpass filter (fig. 1, element 12 and col. 2, lines 53-56), including logic for adjusting the bandpass filter (col. 3, lines 9-19), where the comparing of current and previous values and the finite state machine are indications of logic. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the active tunable bandpass filter and filter control logic of Gabara for the bandpass filter of Reisenfeld, in order to provide the benefit of provisioning the bandpass filter accordingly for detecting any of the N data rates based on power measurements at the data rate nulls taught by Reisenfeld.

7. Claims 7, 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisenfeld (US Patent No. 4887280) in view Torgow et al. ("Bandpass Filters with Steep Skirt Selectivity"; Torgow et al.; PTGMTT International Symposium Digest, 1964, Vol. 64, Issue 1, May 1964, Pages 22-26).

Regarding claims 7, 8 and 22, Reisenfeld discloses the data rate detector of claims 6 and 17, but does not disclose that the bandpass filter is a passive Butterworth filter. Torgow et

al. disclose a passive Butterworth bandpass filter with sharp cutoff characteristics (page 22, paragraph 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a passive Butterworth bandpass filter as taught by Torgow et al., for the bandpass filter of Reisenfeld, to achieve sharp cutoff characteristics.

8. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aronson et al. (US Published Patent Application No. 09/777917) in view of Reisenfeld (US Patent No. 4887280), and further in view of Doh et al. (US Patent No. 6684033).

Regarding claim 13, Aronson et al. disclose an optical transceiver, comprising: an optical receiver having a photodetector to receive an optical input (fig. 2, element 102, abstract and paragraph 0026); a post amplifier connected to the signal rate detector and the optical receiver (fig. 2, element 104, and paragraph 0026); and a host interface connected to couple the output of the post amplifier and a data rate signal to a host system (fig. 2, element 104 and host implied to the left of fig. 2 as described paragraph 28). Aronson et al. disclose the host providing a signal indicative of the data rate to the transceiver (paragraph 0045), but do not disclose the transceiver having circuitry to detect the data rate of the received signal. Reisenfeld discloses a frequency-selective filter assembly and signal rate detector that detects the data rate of the received signal and outputs a signal indicative of the data rate, the assembly including a first filter to pass a signal when at least a selected difference of spectral power at a first selected filtered frequency exists between one known data rate relative to the other of two known data rates (col. 1, lines 45-58 and col. 4, lines 10-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the frequency-selective filter assembly and signal rate detector of Reisenfeld in the system of Aronson et al., in order to provide the benefit of detecting the data rate of the actual received signal, as taught by Reisenfeld, instead of

depending on the host to provide the expected data rate. Aronson et al. in view of Reisenfeld do not disclose a low noise transimpedance amplifier to generate an output electrical signal in response to the received signal. Doh et al. disclose an optical receiver with a photodiode followed by a low noise transimpedance amplifier for amplifying the signal from the photodiode before further processing (fig. 3, element 120 and col. 4, lines 35-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a low noise transimpedance amplifier following the photodiode of Aronson et al., to amplify the level of the signal before further processing without adding significant noise, as taught by Doh et al.

Regarding claim 14, Aronson et al. in view of Reisenfeld and further in view of Doh et al. disclose the optical transceiver of claim 13, further comprising: (a) an ac modulator to receive host input through the host interface and generate an electrical output (Aronson et al.: paragraph 0032); and (b) an optical transmitter to receive the electrical output of the ac modulator and in response thereto generate an optical output (Aronson et al.: fig. 2, element 103, abstract and paragraph 0026).

Regarding claim 15, Aronson et al. in view of Reisenfeld and further in view of Doh et al. disclose the optical transceiver of claim 14, but do not disclose that the optical output is at the rate of transmission of the optical input. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the input and output of the transceiver of Aronson et al. in view of Reisenfeld and further in view of Doh et al. would have the same transmission rate, in order to be able to both transmit and receive signals of a specific type.

Regarding claim 16, Aronson et al. in view of Reisenfeld and further in view of Doh et al. disclose the optical transceiver of claim 14, wherein the optical transmitter is a laser (Aronson et al.: fig. 2, element 103, abstract and paragraph 0026).

Allowable Subject Matter

9. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed 25 June 2004 have been fully considered but they are not persuasive.

Regarding claims 1 and 17, the applicant argues that Reisenfeld does not anticipate the claimed invention. Specifically, the applicant notes the examiner's citation that fig. 1, element 32 of Reisenfeld discloses "a passing frequency-selective filter assembly..." and argues that fig. 1, element 32 of Reisnfeld is rather a "second channel" for the I' and Q' signal components, thus in contrast to the claim invention. However, the applicant claims "a data rate detector, comprising... a passive frequency-selective filter assembly". If the filter assembly fig. 1, element 32 of Reisenfeld is one of two filter assemblies of a data rate detector, this does not preclude it from meeting the limitation "a data rate detector, comprising... a passive frequency-selective filter assembly".

The applicant also argues that the fig. 1, element 32 assembly of Reisenfeld does not anticipate the assembly of claim 1 because it "operates in completely different manner than what is called for in claim 1", however the applicant doesn't denote the difference further. The sole claimed operation of the claimed assembly in the applicant's claim 1 is the operation of a first filter passing a signal when at least a selected difference of spectral power at a first selecting filtered frequency exists between the two data rates of the filter. Reisenfeld discloses

passing a signal through a first filter when a difference of spectral power at the filtered frequency exists between the two data rates (fig. 1, element 32 and col. 4, lines 21-27).

Regarding claims 13, 16 and 24, the applicant argues that the rejections are based on hindsight, stating that Reisenfeld contains no teachings that would suggest modifying the optical transceiver of the Aronson patent, and that Reisenfeld is not concerned with optical transceivers. However, Reisenfeld teaches receiving a data signal and detecting one of two possible data rates of a signal, and Aronson et al. teach an optoelectric transceiver which receives an optical signal, converts it to an electrical signal, and has a controller select one of two expected data rates of the received signal. Although Reisenfeld does not mention an optical transceiver, it would have been obvious to one of ordinary skill in the art at the time of the invention that both references are analogous in their teachings of received signals, electrical signals and received signals' data rates. Further, the unmodified teaching of Aronson et al. discloses the controller providing a data rate selection signal for selecting the expected data rate of the received signal and Reisenfeld teaches data rate detection of the actual received signal. Given that the teachings are analogous as described, the benefit of detecting one of two actual data rates of the received signal, as taught by Reisenfeld, applied to Aronson et al. which teaches expecting one of two data rates, would have been obvious to one of ordinary skill in the art at the time of the invention. The applicant also argues that it seems as if the examiner's proposed modification would render both of the references incapable of performing their intended functions; however, combining Reisenfeld with Aronson et al. would simply require adding the functionality of the teaching of Reisenfeld to the teaching of Aronson et al., rather than defeating the functionality of either reference. Further, the combination could be simply made since the Reisenfeld data detector has one signal input and one comparator output.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

12. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER